



MEETING NOTES

PROJECT:	23982-23929 I-70 West Vail Pass Safety and Operations Improvements
PURPOSE:	Project Leadership Team (PLT) Meeting #11
DATE HELD:	February 11, 2022
LOCATION:	Online Google Meet Meeting
ATTENDING:	Karen Berdoulay, Resident Engineer, CDOT Region 3 Rob Beck, CDOT Region 3 Program Engineer Zane Znamenacek, CDOT Region 3 Traffic Program Engineer Matt Figgs, CDOT Region 3 Pete Wadden, Town of Vail Dick Cleveland, Town of Vail Greg Hall, Town of Vail Tracy Sakaguchi, Colorado Motor Carriers Stephanie Gibson, FHWA Jeff Bellen, FHWA Michael Braduis, US Forest Service Marcus Dreux, US Forest Service Jared Pierce, US Forest Service Robert Jacobs, Summit County Ben Gerdes, Eagle County Randal Lapsley, R S & H Mark Talvite, R S & H Dan Logsdon, R S & H Jim Clarke, Jacobs Mary Jo Vobejda, Jacobs Loretta LaRiviere, Jacobs
COPIES:	Attendees

SUMMARY OF DISCUSSION:

1. Introductions

- a. Karen began the meeting by introducing the PLT attendees' names and organizations.

2. Agenda Review and Meeting Goal

- a. Mary Jo said we are going to review everything that has gone on since the last time we met so you as the PLT are able to weigh in on the consistency with the CSS guidelines. You are the stewards of CSS and it's your job to make sure we are using it correctly on the project.

3. Work Completed Since the Last PLT Meeting

Mary Jo said there has been a lot of work and meetings since we last met in November.

- a. TT Meeting #22 – November 15th
- b. CSS Survey was sent December 13th to about 63 stakeholders that represented the PLT, TT, and the ITF members. We received feedback from nine people. Generally, we asked if Construction Package 1 was a success and the survey results indicated that was the case.

We received 50/50 feedback on two questions:

- Do you feel Construction Package 1 design succeeded in addressing the SWEEP issues and recommendations? The responses were 50/50, so not as much support.
 1. Stephanie said she assumes we received 50/50 on this question is because Construction Package 1 can't address all the SWEEP and ALIVE issues because it had a very limited scope. For example, the ALIVE animal crossings aren't until Construction Package 4.

Mary Jo said she thinks Stephanie's observation is good. All the SWEEP issues couldn't be addressed in Construction Package 1. It's also true that SWEEP in particular is an area in which all of the construction can't address all of the issues, so even when all packages are completed, there will still be issues around water quality, monitoring other things that will exist in this watershed, so it is understandable in that particular arena.

- Do you feel your concerns and suggestions helped develop new ideas during the design of Construction Package 1? Again, the responses were 50/50?

One comment we received was that it may be too early to judge the success of Construction Package 1. The truck ramp is completed but it's not 100% done.

2. Stephanie inquired if there were 9 surveys returned, how could you get 50/50?

Loretta responded that we received 9 surveys but not everyone answered all the questions.

3. Greg asked is we knew on the two questions we received 50/50 if those were the same people?

Loretta said the responses are anonymous, so we don't know how people answered the questions.

Mary Jo said we're looking for you to let us know if you feel the process is compliant, and are we being a good steward not only of CSS but also the environmental document. Do we need more meetings, more information in a greater detail?

- c. The SWEEP ITF Meeting #7 was on January 10th. The next SWEEP Meeting will be sometime in April which should wrap up that ITF.
- d. TT Meeting #23 was on January 24th
- e. CP #2 (Rec Path) FOR Meeting was on January 31st. The work that's going on right now is to review the comments and then make updates to plans.
- f. EMS ITF Meeting #4 was on February 7th
- g. There is a submittal to the 106 consulting parties coming up. Jim said the 106 Consulting Parties are the same membership as the Aesthetic ITF. CDOT will be submitting a copy of the CP #2 FOR plans, the Aesthetic Guidelines that have been



reviewed by the ITF with comments addressed and minor revisions to the Area of Potential Effect from CP #2 for the recreation trail.

- h. Design adjustments are always going on because we continue to update the topographic survey and the wetland survey made a lot of difference to these elements and so that has actually changed the rec path alignment a little bit. Geotechnical investigations are influencing the decisions being made around on walls and types. The Sediment Control Action Plan has been finalized and that is also influencing the design as we move forward.

4. Construction Progress

- a. Matt said we opened the Truck Escape ramp in November, and it has been operational since Thanksgiving. Package one included an additional element which is the westbound remote closure system at MP 190. We had started a lot of that work over the fall, installing conduits and other underground work, so this spring that work will resume and will complete CP #1.
- b. We've been coordinating with emergency services for this upcoming season, we had a meeting on Monday with that group. We talked about phasing, had a lot of support for where the phasing is headed, some feedback on coordination, what access will be throughout construction. We're kind of in a holding pattern since November but starting to gear up for when we resume construction probably in the April timeframe.

5. Updates to Construction Packages

- a. Matt said we have an alternative delivery contract with Kiewit to do the construction work, and one of the big things we've been doing is trying to finalize our packaging plan. As we get further into design we are shifting some things from one package to another.
- b. CP #2 coming out this summer includes the part of the recreation path that is not directly related to the bridge. A little later this summer we have another construction package which includes the westbound bridge, the section of trail that is impacted by that bridge as well as a cut wall at MM 187 and detour paving to prep us for the next year.
- c. 2023 through 2024 is when our biggest package, CP #4 kicks off for the auxiliary lane, wildlife crossings, and the curve reconstruction.
- d. The eastbound bridge will be under a separate construction procurement, delivered using a traditional design/bid/build approach and that will be constructed in 2024-2025.
 - 1. Greg asked since the bridge is a separate package will the landscaping for the entire project will be completed in CP #4.

Matt said it hasn't quite been determined if it will be split between the two packages or if it is in the design/bid/build package. The plan is being done comprehensively. Just because it will be bid separately doesn't mean it is being

designed separately. Whether it gets built by Kiewit or another contractor is to be determined.

6. Design Highlights

- a. Karen said as many of you know we're relocating a portion of the rec trail because we are impacting it with construction of the third eastbound lane. Specifically, we're relocating it from around MM 185, about halfway up the pass to MM 187. We did reevaluate the alignment of the rec path both horizontally and vertically so that it would fall below I-70.

Randal said the alignment tries to minimize impacts to the trees, the slopes that we're impacting and the wall heights. While this part is being built we will keep all the trail users in an area that is adjacent to I-70, separated by barrier that will allow us to build this path offline as quickly, efficiently, and safely as possible.

The existing path is 8'-10' wide and we are putting in a 12' wide path with 2' shoulders and varying slopes to try to match the terrain and minimize impacts.

Slope rounding will be incorporated to blend with the natural environment. We are going to try to have benching where we can and then some boulder placement similar to how we landscaped the truck ramp.

We will have some shy distance next to the cut wall because we know a bike rider would not want to ride right next to a wall, so we did accommodate for that with a minimum 2' and maximum 3' distance at least to the face of the wall.

Wherever there is a slope drop next to the rec path we did try to incorporate a little bit of a bench so that the drop wasn't right next to it and if there was a steeper drop or wall there will be a pedestrian rail. The bridge will be an arched bridge and across the bridge it is 12' wide and 1' shy distance which is pretty typical for pedestrian bridges.

To optimize the earthwork, we have some berms that are part of the grading design. We're still finalizing the actual slopes but trying to balance with what is on site and blend in a bit more so there's not very distinct slope changes.

2. Greg said there is an MOU being circulated on allowing ebikes on forest service property in three different areas. Is there anything in the works from the federal government on bike path design that would be different based on e-bike usage that we should be aware of? We don't want to have a new rule that was in process that would impact our bike path after it's built.

Randal said Candice is our bike trail design specialist and she's probably the most capable one to answer that question. In terms of the design standards that we use there's a lot of similar design standards that would apply both to an e-bike user as well as a regular bike user. The only thing that becomes different is the speed with which you're riding your bike. We're setting the trail at a design speed that most of the users on the trail would be using. Obviously if you're going uphill, you're going a lot slower than if you are going downhill. We also

recognize this trail gets used by all types of users, so we talked about incorporating some pull out areas, some sitting areas and making sure that there's good signing. The fact that we're making the trail wider than it is today and pushing some of the walls away helps to take care of the safety concerns for both e-bike users and regular bike users.

Karen said we did go with a 12' wide path. This path has a very high volume of users and there is a big speed difference between the uphill and downhill direction so a lot of the guidance for e-bikes is already on the table. We're already planning for fast bikes going downhill and for large volumes.

3. Marcus said the MOU is being worked on through the Forest Service's recreation manager with CDOT. He wondered where the rec path design standards are posted.

Randal said those standards were developed during the FIR level design. They are on the Google Drive. We can provide those for review. We vetted them with CDOT in terms of the design staff and got concurrence. Randal said he will ask Candice to provide a copy to you.

- b. During construction, I-70 will have two 11' lanes with a barrier to separate the bike traffic from the highway and there will be another barrier in a lot of those areas that will separate from the construction work that is going on.

We will have a vertical barrier between I-70 and the rec trail through that area. In areas where the construction work is further away from the trail we won't include that barrier between the construction and the trail users.

1. Stephanie asked if the barrier between the interstate and the bike lane will be a rigid barrier. Because if it's not rigid, someone hits, it they still impact the bike lane.

Randal said, you're correct it will be a Type 9 or 7 precast portable concrete barrier that will be pinned so it doesn't move if it is hit.

Randal said the other elements we are working through will be the access points for construction through these areas. There will be flaggers at those locations. Also looking at where emergency access can be provided to the trail to provide emergency response.

2. Greg said the barrier needs to be 44" high so that if a bike rider hits it, they're not tumbling over the top and into the traffic lane.

Randal said there will be fencing on the top of the barrier, so someone doesn't spill over and get where they don't want to be.

7. Areas with Overlapping Design Features

- a. Randal said sediment control measures, the wildlife crossings and the wall placement overlap. It's really balancing act and we want to minimize the walls. We are thinking at the walls in conjunction with the trail and how the trail interfaces

with the sediment control measures. We need to provide access to the control measures so that maintenance staff can get in there to clean them out and we also don't want them to be an eyesore. In looking at all the elements that are coming together it really is an intricate balancing act of priorities, purposes, and safety. We are following the guidance and core values set out in the EA. It's been challenging and fun to try to integrate all these elements together.

8. Wall Analysis and Design Exceptions

- a. Mary Jo there are two walls that need Design Exceptions. These have been presented to the TT. The TT is not providing you as the PLT with the recommendation today. We haven't gotten that far because we've been talking about the wording that should be in the Design Exception.

At MP 185 the walls were refined to minimize the total area of walls. These are tiered walls, and they are above I-70. The Aesthetic guidelines and design criteria come into play. At MP 185, the wall height and length have been minimized based. Rock sculpting is proposed as the face of that wall.

At MP 187 actually sculpting the existing rock was considered, meaning using the existing rock as the face of the wall. However, that rock is not stable enough and so other options are under consideration for the face of the wall and the wall height.

At MP 187 we're optimizing the curvature of I-70 to improve the safety in that area. In the process of doing this, the curve for the roadway, gets flatter so it doesn't contour as closely to the existing landside that results in walls below I-70 (Walls 15 & 17) and then a wall on the uphill side (Wall 16). If you move the roadway a little bit in one direction it creates an issue on the uphill side. If you move it the other direction, it creates an issue on the downhill side. It's a balancing act between making sure we provide the alignment of the roadway that is needed while minimizing the walls lengths and heights.

We were really trying to optimize all of the elements that go into the Core Values – safety, operations, aesthetics, enhanced environment, recreation, implementability, maintenance and durability of the wall. When we were looking at these things, it wasn't looking at one specific element and saying that is the driving factor. It was really trying to balance out all of the Core Values.

- b. We looked at a number of different layouts for these things and came up with three alternatives for the wall systems:
 - Alternative 1 - base case had the highest eastbound fill wall which is not optimum because there are a lot of trail users down there.
 - Alternative 2 - move the alignment by 20' closer into the hill and that resulted in some walls that are not as high but are longer.
 - Alternative 3 - move the alignment by 30' created the shortest walls construction but still had the same wall impacts as Alternative 2.



We wound up with a tiered wall. For Wall 16 we are trying to contour the walls so they fit into the natural topography. The first element is figuring out where the walls are and the heights and then you look at what is the facing type we could use there. How do we optimize the wall and make it look natural and meet all the aesthetic requirements?

Our first thought was we are going through a rock area, can we optimize and carve out the existing rock. Our geologist told us the geology won't be stable over a long period of time. It is rock that tends to crumble and weather very easily.

Then we looked at doing a scalloped or shotcrete wall. We concluded that a shotcrete wall with benches in this area would really look most natural. The success that we had at the truck escape ramp led us to believe that we could create a wall that would be aesthetically appealing in this area.

3. Greg said two slides ago there was something about a shorter wall with the INFRA grant but, same ultimate build out. Can you explain if there will be additional wall built in the ultimate buildout above this wall?

Randal said in this area we looked at what the future westbound lane would be, and we set the bottom location of that wall at a point where the ultimate buildout would be.

c. Analysis of Wall Type for MP 187

- Goal - light touch on the land, a natural look
- Considered:

Surrounding area, topography, geology

- Types reviewed

Rock sculpting the existing rock

Shotcrete wall at the truck ramp led us to believe we could create these walls. In working with our geologist and our landscape architect to make sure the striations in the wall, the vertical element as well as the horizontal element align with the existing geology.

Scalloped walls often resulted in more square footage of the overall wall because the scallops are very defined heights that didn't allow us to vary the top of the wall as much.

- Factors in the decision

Existing rock not stable enough

Shotcrete gives ability to vary the wall top

Shotcrete gives ability to pull the walls back into the terrain

Shotcrete and scalloped provide planting areas

Economy of construction time



- d. MP 185 is another area where we need to get a Design Exception for wall height. We are anticipating the wall will be over the 12' height, the limit allowed in the CSS Design Criteria. In this area what's driving this is the alignment of I-70 pushing over to build the bridges offline, to keep the bridges as far away as we can from Black Gore Creek. We found, through the course of our wetland investigation, there was a fen out there. This fen was not identified during the EA process.

Originally we had our rec trail realignment going through this fen. When we discovered it, we looked at how to avoid it by realigning the old US 6 trail. We looked at a number of different alignments in this area to minimize the impacts to the fen, the impacts the grading in the area, and the impacts to trees. This resulted in walls between I-70 and the trail. These are fairly long walls, so we are working to blend them into the topography and the existing geology.

What we were trying to do is optimize distance between the fen and the walls. We're looking at tiering this area to create areas with vegetation to break up the vertical face of the walls.

The thought process at this wall is similar to MP 187 trying to blend it into the topography and look at the geology. Our goal is for the color and stain of the shotcrete to match the existing rock adjacent to this wall. Using the shotcrete element helps us minimize the walls because we can vary the heights, so they are not all one straight line. And then if we can vary the benches in and out a little bit that will help us optimize the wall heights as well as allow us to provide landscaping in some areas and narrow it up in other areas.

In the Narrows area there is natural benching that was done to create I-70 originally and that gives a sense of the landscaping in that area. The intent is really to create a wall system that looks very natural. We know it won't be perfect, but we felt it provided as light a touch on the land as we could which is the intent of the CSS process.

4. Greg said you can see how the rock is more horizontal and on the truck ramp they kind of followed a little bit more of the slope of the ramp. Geology doesn't necessarily follow the slope of the road and it might be better to try to have them look like a true geologic bench.
5. Greg asked at the top of the shotcrete wall, what do you do with drainage. Do you just let it come over the top or is there a transition?

Randal said we're going to let the area that is immediately adjacent to the wall drain over the top for the most part. Where the old trail is we'll try and capture some of the drainage with the trail drainage system and then we will convey that through pipes.

Randal said we considered pans behind walls for long term maintenance and drainage. We determined adding a pan behind the wall would basically fill in with sediment over time and wouldn't improve drainage. In terms of the structural design of the soil nails that are going behind the walls, will be able to

withstand any seepage, further would be maintainable and durable for a long period of time.

- e. Mary Jo said this is the Design Exception that we're putting in front of the TT. This hasn't been decided and they're not sending you a recommendation. The process that we went through allows for Design Exceptions and they are intended to balance scenic, historic, cultural, environmentally sensitive areas with safety and mobility, and it requires that a Design Exception be requested and that it explains why it is requested.

We asked the TT for the Design Exception for MP 185. In the statement shown, everything that is in black was our original request. Fundamentally the issue with the walls is that they are higher than 12' and that is the actual design exception.

The TT has come back with comments and asked us to quantify the height of the wall, the length of the wall and the percentage of the wall that is over 12' so that's what we've added to these design exceptions. The red is what we have added based on the comments that we have received. Same thing is true with the MM 187 wall.

*Walls at MP 185 were refined to minimize the total area and height of walls and avoid impact to a nearby FEN wetland. The alignment chosen reduced the overall wall height from the EA conceptual wall layout and minimizes the height of the wall above I-70 for the INFRA project. The design accommodates the future widening. **With the new alignment, the walls vary from 10' to 16' in height. Approximately 52% of the wall length is over 12' in height.***

*Walls at MP 187 were refined to minimize the total area and height of the walls. Using the existing rock was considered at MP 187. The existing rock is not stable enough to ensure a long-term face without rock falls. **This wall has a 13.5' maximum height and is 550' long, with approximately 9% of the wall over 12' in height.***

- f. We are asking you to weigh in on whether we have followed the CSS process and if you have any concerns on the process we used and the steps we've taken. The TT will agree with the analysis, make the recommendation and we will come back later or perhaps we will email you to let you know they have made this recommendation.
 1. Greg said I think you are following process. You've got to ask for the exception and you're going through that, so you know process standpoint, yes. Greg thinks in the upper area, because you are encountering rock, it would feel like rock would be there. At the truck ramp the shotcrete is at the bottom of a fill slope. At the lower wall, it looks to be a pretty big wall area, and would you really expect to see rock cut in that area. Even though it is aesthetically pleasing, is it following what you would expect in that area.
 2. Mary Jo said we don't really have a choice as to whether or not we build a wall here. The designers have gone through and looked at how can we make them smaller, put the bigger walls underneath the road which is one of the directions of the CSS Design Guidelines. So, they've done that, and the designers have optimized to this design. Greg's question is would it look natural. Dick said the scale of the sculpting really makes a difference and it really needs to mimic what

natural rock at that place looks like. What is there today is unstable and not suitable for wall sculpting. The other design philosophy is if you can't mimic that, sometimes a scalloped wall which is a clear departure, is a better aesthetic look because you acknowledge that it is not natural. Going forward that is a design decision. I can see when you look at the pros and cons of the two and get farther away from the fen an MP 185 which is good. But I would like to keep on the table at least if we can come to some clarity and comfort level that the sculpting can mimic the natural design features out there.

Therefore, we need to really focus in on what are the specifications and construction methods that make sure the wall doesn't look like a fake rock.

3. Greg said you expect to see rock facing at MP 187. MP 185 may not be a place that you would anticipate finding rock and it may look like you forced a fake rock in the overall landscape, and it may be better to go with scallop. It's like putting a sculpted wall next to a sand dune. There's no expectation you would see a wall like that there.

Mary Jo said this is great input and we're taking this back to our TT on Monday. These are comments we can give back to them that you as the PLT weighed in on these considerations and discuss how we might address them as we move forward putting their recommendation together.

9. SCAP and Map Book

- a. Karen said we had a SWEEP Meeting in January, and the goal was to discuss the SCAP document and the first part of the Map Book. The reason we didn't do the entire Map Book at that meeting is that from MP 185 to MP 190 is it didn't make sense to lay out concepts for what we are designing now. We will put everything into the Map Book including anything that isn't mitigation for the work we are doing for MP 185 to MP 190 in the future. We worked very closely with the agencies to address their comments on the SCAP document and Map Book. We have come to an agreement on both documents right now. We're getting ready to send out the maintenance manuals and as well as feedback on work from MP 185 to MP 190.

1. Greg said with the survey there was obviously some disappointment, and I don't know if you heard more in these meetings we could do better to improve our score?

Karen said she thinks what we heard back from the survey were SWEEP and ALIVE in CP #1 and I think other people's comments including Stephanie's, the work on CP #1 was the truck ramp and there really wasn't any ALIVE or SWEEP recommendations incorporated there except for replacing a basin that was already there. I think the stakeholders feel like we have the right approach with our SWEEP and ALIVE ITF meetings.

10. SCAP Design Concepts in Construction Package 2

- a. Randal said there are some SCAP features in CP #2 that are being at least accounted for that are really part of a future design, but they needed to be done earlier. There



are some ponds that we are putting in as part of CP #2 and we are putting them in locations where we will build the eastbound lanes which will be one of the later construction packages. There are some elements of the rec trail that will be in CP #3 so what you saw in terms of the rec trail was the upper portion, and the lower portion gets tied into the bridges that are being replaced. We are designing the SCAP ponds with each one of those packages with the intent that some of them will be built now and built in places that will accommodate the future construction.

- b. Randal said the elements of the SCAP ponds that we are trying to incorporate are to make sure we are capturing the volume of the sand and sediment that would be needed to create a basin that is maintainable by CDOT. In doing that we created a hard surface so when maintenance is out there with their front-end loader, they know where the bottom of the pond is, and they aren't digging out more sediment that they need to. There will be a concrete wall where they can push the sediment up into the bucket against the wall and then we created areas where they will be able to get their equipment in and out. A lot of elements to consider trying to minimize the grading that is around there. We found a couple of locations where we were proposing sediment ponds in rock so we looked at how to relocate those or minimize the amount of rock in those locations and really try to make them as visually pleasing as you can make a sediment pond.

1. Greg said he recalled in the FIR plan of the whole package there were some areas where there's some rundown pipes that were going through tree areas. They weren't part of landscape plan but also when you have some straight shots would look like ski runs under electric utility lines if you had to go through trees on the landscape plan just blending that a little bit better and making sure those are addressed long term.

Randal said we've looked at those kind of issues in FOR plans for CP #2. We've had a lot of discussion about if there's a washout area that is already deteriorated could we put a pipe in this area and avoid the kind of the excavation and really look at maybe blending in with the existing to avoid more erosion through design and putting a pipe through there. We tried to minimize the lengths of runs of pipes while still making sure that they outlet in the area that doesn't create erosion downhill and trying to maintain outfalls at locations where there's wetlands downstream because you know we don't want to cut off the flow to wetlands and have it dry up for lack of moisture. We spent a lot of time massaging our drainage design from the FIR plans to each individual CP as well.

2. Greg said the collaborative effort went through their 2020 reassessment and brought up some concerns about CSS and going forward. What prompted it were environmental requirements being tracked or just doing the minimum of checking. Is the process being followed and how can it be implemented better on all projects? In regard to data and monitoring are we not just checking what's required but really understanding it and does that feedback go all the way back to the design team? There seems to be a little bit disconnect at times and I'm just trying to understand how that process and flow can be improved.

Jim said the EA and the FONSI had 80 plus commitments and it's actually more than that because there are multiple commitments within each commitment so they're probably over a couple hundred. For each construction package we are going through a whole compliance process. We have big spreadsheet where we go through each of those commitments and document how we're complying with that and what is our back up. There's a lot that goes on behind the scenes to really show that we are meeting all those commitments. The FONSI also has a lot of commitments for the different MOUs that were set up during the CSS process. We're happy to share those matrices if you would like to look at them.

Mary Jo said this is something she is interested in personally. In any kind of strategic thinking that you do as a group, how does it become a tactic and how does it get implemented. She will personally look into the concerns that might have come from the collaborative effort as regards to CSS and see what I can find out.

11. Schedule

Karen said the schedule is the same one you have seen before. It lays out when the construction packages go on, the PLT Meetings will be continuing through the entire construction. The TT will conclude when design is complete. The TT requested that they continue to have briefings so we will expand the PLT to include anyone on the technical team that doesn't currently participate in the PLT once we get to September.

We have one more SWEEP ITF that's being planned and we will have an emergency services ITF meeting early each year to get them up to speed on what's happening for the upcoming construction season.

12. Next Steps

We have our TT meetings planned for February, March, and April. The next PLT Meeting will be in May. In the meantime, the design goes on and the construction packages pulled together and construction and by May will have started for this year.

1. Greg asked Matt if he is still looking for places to get rid of dirt?

Matt said they are always for spots to get rid of dirt.

Greg said he will reach out to Matt to discuss.